List of Contents

NUMBER 1/2

		NUMBER 1/2
L. M. García-Raffi, S. Romaguera and E. A. Sánchez-Pérez	1	Sequence Spaces and Asymmetric Norms in the Theory of Computational Complexity
J. Buchanan, R. P. Gilbert, A. Wirgin and Y. Xu	13	Unambiguous Identification of the Uneven Boundary of a Half-Space Probed by Acoustic or Electromagnetic Waves
M. D. Roselló, J. R. Serrano, X. Margot and J. M. Arnau	33	Analytic-Numerical Approach to Flow Calculation in Intake and Exhaust Systems of Internal Combustion Engines
A. Blasco, L. Sanz and R. Bravo de la Parra	47	Approximate Reduction of Multiregional Birth-Death Models with Fast Migration
X. Song and L. Chen	67	Modelling and Analysis of a Single-Species System with Stage Structure and Harvesting
I. Kozlova, M. Singh and A. Easton	83	Predator-Prey Models with Diffusion Based on Luckinbill's Experiment with <i>Didinium</i> and <i>Paramecium</i>
MS. Hwang, CC. Lee and YL. Tang	103	A Simple Remote User Authentication Scheme
I. Bonzani and L. Mussone	109	Stochastic Modelling of Traffic Flow
E. Deleersnijder, A. Mouchet, E. J. M. Delhez and JM. Beckers	121	Transient Behaviour of Water Ages in the World Ocean
S. R. David and J. W. Seaman, Jr.	129	Hierarchical Bayesian Analysis of the Carryover Effect in Two-Period Crossover Designs
K. Q. Lan and J. H. Wu	139	A Fixed-Point Theorem and Applications to Problems on Sets with Convex Sections and to Nash Equilibria
L. Hadji	147	Modelling and Asymptotic Analysis of Particle-Interface Interaction
G. Vallet and D. Trujillo	157	A Stochastic Modelling of Crystallization in a Dispersed Medium
YK. Lin	173	Overall-Terminal Reliability of a Stochastic Capacitated-Flow Network
V. Sundarapandian	183	Nonlinear Observer Design for Bifurcating Systems
K. H. Kwek and W. Zhang	189	Periodic Solutions and Dynamics of a Multimolecular Reaction System

V. N. Dorovsky,
V. S. Belonosov and
A. S. Belonosov

V. Sundarapandian

211 Nonlinear Observer Design for Discrete-Time Bifurcating Systems

T. Pham-Gia and N. Turkkan

217 An Optimal Two-Stage Graphical Search Planning Procedure for Submerged Targets

S. Schnell and P. K. Maini

231 Erratum to "Enzyme Kinetics Far from the Standard Quasi-Steady-State and Equilibrium Approximations"

A Tribute to Professor John Brindley

NUMBER 3 MATHEMATICAL MODELLING OF NONLINEAR SYSTEMS

G. Wake and M. Nelson	xiii	Preface
G. Wake and M. Nelson	xv	Foreword
J. Cisternas and P. Holmes	233	Buckling of Extensible Thermoelastic Rods
R. Fairlie and J. F. Griffiths	245	Oscillatory Combustion in Closed Vessels under Microgravity
R. I. Leine and D. H. van Campen	259	Discontinuous Bifurcations of Periodic Solutions
C. Lowe and J. Clarke	275	A Class of Exact Solutions for the Euler Equations with Sources: Part 1
A. C. McIntosh, J. Brindley and J. F. Griffiths	293	An Approximate Model for the Ignition of Reactive Materials by a Hot Spot with Reactant Depletion
H. Malchow and S. V. Petrovskii	307	Dynamical Stabilization of an Unstable Equilibrium in Chemical and Biological Systems
A. Öztekin, B. R. Seymour and E. Varley	321	Unsteady Stratified Swirling Shear Flows
B. D. Sleeman and I. P. Wallis	339	Tumour Induced Angiogenesis as a Reinforced Random Walk: Modelling Capillary Network Formation without Endothelial Cell Proliferation
G. H. M. van der Heijden and J. M. T. Thompson	359	The Chaotic Instability of a Slowly Spinning Asymmetric Top
R. O. Weber, G. N. Mercer and H. S. Sidhu	371	Combustion Leftovers
A. Wilson	379	Complex Spatial Systems: Challenges for Modellers
K. Zhang and D. Gubbins	389	Convection-Driven Hydromagnetic Waves in Planetary Fluid Cores

NUMBER 4/5

		NONIDER 4/3
S. Motta		A New Formulation and Gauge Invariance of the MW- CRF Method for Kinetic Equations
WT. Li		Classification Schemes for Positive Solutions of Nonlinear Differential Systems
V. N. Dorovsky	419	Brownian Motion and Reversible Hydrodynamic Equations of Bubble Liquid
S. Brzychczy	435	Existence of Solutions of Nonlinear Infinite Systems of Parabolic Differential-Functional Equations
SD. Lin, H. M. Srivastava and PY. Wang	445	Some Families of Hypergeometric Transformations and Generating Relations
T. Sawik	461	An Exact Approach for Batch Scheduling in Flexible Flow Lines with Limited Intermediate Buffers
A. d'Onofrio	473	Pulse Vaccination Strategy in the SIR Epidemic Model: Global Asymptotic Stable Eradication in Presence of Vaccine Failures
L. Esteva-Peralta and J. X. Velasco-Hernández	491	M-Matrices and Local Stability in Epidemic Models
X. Yang	503	Oscillation Results for Second-Order Half-Linear Differential Equations
YK. Liu and B. Liu	509	Random Fuzzy Programming with Chance Measures Defined by Fuzzy Integrals
Y. Yavin	525	Modelling of the Motion of a Cart on a Smooth Rigid Surface
S. Evje and K. K. Fjelde	535	Relaxation Schemes for the Calculation of Two-Phase Flow in Pipes
HS. Shih	569	An Interactive Approach for Integrated Multilevel Systems in a Fuzzy Environment
L. Egghe	587	Development of Hierarchy Theory for Digraphs Using Concentration Theory Based on a New Type of Lorenz Curve
ZH. Fong, TW. Chang and CW. Tsay	603	Mathematical Model for Parametric Tooth Profile of Spur Gear Using Line of Action
J. Wieczorek	615	Phase Spaces for Quasi-Linear Hyperbolic Functional Differential Equations with Unbounded Delay

NUMBER 6 LYAPUNOV'S METHODS IN STABILITY AND CONTROL

E. A. Galperin

xiii Preface

N. Seube, R. Moitie 633 Viability Analysis of an Aircraft Flight Domain for Takeand G. Leitmann Off in a Windshear A. V. Karapetyan 643 Invariant Sets of Mechanical Systems 663 Approach to Study of Bifurcations and Stability of Integro-A. Domoshnitsky and Ya. M. Goltser Differential Equations E. A. Galperin 679 Generalized Perturbation Equation for Integral and Integro-Differential Equations and Applications Construction of Lyapunov Functionals for Stochastic V. Kolmanovskii 691 and L. Shaikhet Hereditary Systems: A Survey of Some Recent Results 717 Translational Symmetry of Certain Integrals with E. A. Galperin Application to the Calculus of Variations and Optimal Control Approximate Observability of Abstract Evolution B. Shklyar Equation with Unbounded Observation Operator NUMBER 7/8 M. A. Noor Modified Resolvent Algorithm for General Mixed Quasi-Variational Inequalities 747 Existence of Solutions of Nonlinear Extensible Beam K. Balachandran, J. Y. Park and I. H. Jung Equations W. Grygierzec The Closure Problem for the Chain of Moment Equations for Linear Diffusion with Random Drift A Chemotherapy Model for the Treatment of Cancer with S. T. R. Pinho. H. I. Freedman and F. Nani Metastasis J. A. Martín and O. García 805 Variable Multistep Methods for Higher-Order Delay Differential Equations D. Palaniappan 821 Electrostatics of Two Intersecting Conducting Cylinders Y. Yavin 831 Modelling of the Motion of a Disk Rolling on a Torus A. Amassad, K. L. Kuttler 839 Quasi-Static Thermoviscoelastic Contact Problem with M. Rochdi and M. Shillor Slip Dependent Friction Coefficient P. C. Paris and L. Zhang 855 A Disk Rolling on a Horizontal Surface Without Slip 861 Viscoelastic Sliding Contact Problems with Wear C. Ciulcu, T.-V. Hoarau-Mante and M. Sofonea H. T. Banks, G. A. Pinter 875 Analysis of Bonded Elastic Blocks and O. H. Yeoh E. Mamontov. Stochastic Continuum Mechanics-A Thermodynamic-M. Willander Limit-Free Alternative to Statistical Mechanics: and J. Weiland Equilibrium of Isothermal Ideal Isotropic Uniform Fluid

A. E. Hamza 909 Stability of Abstract Difference Equations S. P. Radzevich IR-Mapping Based Method for Designing of Form Cutting Tool for Sculptured Surface Machining Wavelet Transforms on Two-Dimensional Images J. Schmeelk S. Rachev 949 Errata NUMBER 9/10 951 Nonlinear Extended Thermodynamics of a Dilute Non-M. S. Mongiovì viscous Gas Y. S. Wang and M. Z. Qin 963 Multisymplectic Schemes for the Nonlinear Klein-Gordon Equation Behavior of Complemented CA Whose Complement S.-J. Cho, U.-S. Choi 979 and H.-D. Kim Vector is Acyclic in a Linear TPMCA 987 MHD Flows of an Oldroyd-B Fluid T. Havat, K. Hutter, S. Asghar and A. M. Siddiqui 997 The Error Bounds of Combined Forecasting X. Tang, Z. Zhou and Y. Shi Z. Ding, H. Leung 1007 A Study of the Transiently Chaotic Neural Network for and Z. Zhu Combinatorial Optimization S. H. Saker and 1021 Oscillation in a Discrete Partial Delay Nicholson's B. G. Zhang Blowflies Model K. Ezzinbi and J. H. Liu Nondensely Defined Evolution Equations with Nonlocal Conditions The Effect of Constant and Pulse Vaccination on SIR Z. Lu, X. Chi and L. Chen 1039 Epidemic Model with Horizontal and Vertical Transmission 1059 Cellular Automata Modelling and Spreadability S. El Yacoubi and A. El Jai 1075 Minimizing the Probability of Load Imbalance in Hetero-K. Li geneous Distributed Computer Systems 1085 Localizing Attractors via a Generalized La Salle Principle M. Sabatini and L. G. Trussoni M. Abdellaoui, A. El Jai 1099 Cellular Automata Model for a Contact Problem and M. Shillor 1115 Bell Polynomials and Differential Equations of Freud-A. Bernardini and P. E. Ricci Type Polynomials

F. G. Arenas,
M. L. Puertas and
S. Romaguera

V. Casulli and P. Zanolli

1131 Semi-Implicit Numerical Modeling of Nonhydrostatic Free-Surface Flows for Environmental Problems

C. Vani and
A. Avudainayagam

1151 Regularized Solution of the Cauchy Problem for the Laplace Equation Using Meyer Wavelets

J.-L. Lamotte, B. Molina and M. Raydan

1161 Smooth and Adaptive Gradient Method with Retards

NUMBER 11-13

A. Bellouquid 1169 From Microscopic to Macroscopic Models: Asymptotic Analysis of the Broadwell Model Toward the Wave Equation S. Brzychczy 1183 Existence and Uniqueness of Solutions of Infinite Systems of Semilinear Parabolic Differential-Functional Equations in Arbitrary Domains in Ordered Banach Spaces L. Aggoun 1193 Kalman Filtering of a Space-Time Markov Random Field Y. C. Li 1211 Existence of Chaos in Evolution Equations S. C. H. Leung, Y. Wu 1221 A Robust Optimization Model for a Cross-Border and K. K. Lai Logistics Problem with Fleet Composition in an Uncertain Environment S.-K. Kim and Stochastic Disaster Recovery Systems with External J. H. Dshalalow Resources M. F. Mahmood 1259 Analytic Method for Solving Coupled Nonlinear Schroedinger Equations with Oscillating Terms Describing Polarized Soliton Oscillations Y. Wang and N. Cercone 1265 Fast Searches in a Recommendation Session Y. Yavin and C. Frangos 1275 The Controllability of a System of Two Bank-To-Turn Airborne Vehicles A. S. Belenky 1279 Cooperative Games of Choosing Partners and Forming Coalitions in the Marketplace M. Jerry and N. Raïssi 1293 The Optimal Strategy for a Bioeconomical Model of a Harvesting Renewable Resource Problem B. G. Zhang and X. Deng 1307 Oscillation of Delay Differential Equations on Time Scales S. Liu, L. Chen 1319 Recent Progress on Stage-Structured Population Dynamics and R. Agarwal R. Henda and K. Alhumaizi 1361 Spatiotemporal Patterns in a Two-Dimensional Reaction-Diffusion-Convection System: Effect of Transport Para-

meters

A. Pons-Porrata, 1375 RGC: A New Conceptual Clustering Algorithm for Mixed J. Ruiz-Schulcloper and Incomplete Data Sets J. F. Martínez-Trinidad W.-C. C. Chan 1387 A Note on Diffeomorphism and Periodic Differential **Equations** B. Kazmierczak 1393 Phase Boundary Solutions to Model Kinetic Equations via and K. Piechór the Conley Index Theory. Part II 1409 A Note on the Modelling and Analysis of Vector Arma N. Singh, V. S. S. Yadavalli Processes with Nonstationary Innovations and M. S. Peiris 1425 Fuzzy Logic Based Intersection Delay Estimation F. Qiao, P. Yi, H. Yang and S. Devarakonda I. Kramer and 1435 Quantifying the Strength and Durability of Induced G. M. Shearer Immunity to HIV Infection in Women Engaging in Unprotected Sexual Contacts with Infected Men T. Huang 1459 Asymptotic Analysis of Industrial Dynamical Model